EcoStruxure™
Innovation At Every Level

SUSTAINABILITY

A sustainable transformation for transit

Brookville Smart Energy Bus Depot — Montgomery County, Maryland

Montgomery County drives sustainability with AlphaStruxure Energy as a Service and EcoStruxure™ solutions.

In partnership with

AlphaStruxure

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Life Is On | Schneider Electric

AlphaStruxure's Energy as a Service model, combined with EcoStruxure connected products and solutions, helps a community advance bold climate and resilience goals via an integrated microgrid and electric bus charging infrastructure.

Earth-friendly fares

When the June 2012 derecho — a straight-moving band of storms with sustained, hurricane-strength winds — knocked out power for more than a week in parts of Montgomery County, Maryland, civic leaders responded to the crisis with action and vision. The county saw an opportunity to strengthen public infrastructure resilience for its 1.1 million residents while advancing ambitious sustainability goals — reduce greenhouse gas emissions 80% by 2027 and achieve zero emissions by 2035.

"I believe the residents in Montgomery County have a large focus on sustainability," says Chris Brown, Chief of the Office of Energy and Sustainability for Montgomery County, Maryland. "Through our climate action plan, we had tremendous outreach and a lot of engagement with the community to help shape our climate goals; projects like the Brookville Depot are advancing what people want the county to achieve."

As home to many D.C.-area commuters, transportation accounts for a significant portion of Montgomery County's greenhouse gas emissions. By transforming its diesel bus fleet to be fully electric and installing a microgrid to power the buses with renewable energy, Montgomery County's new Brookville Smart Energy Bus Depot will eliminate 160,000 tons of CO_2 while providing uninterrupted transit services under any power circumstances.

Goal

Convert 70 diesel buses to electric and power this new fleet using a smart microgrid solution to help the county boost resilience and achieve net zero carbon emissions by 2035.

Story

When extreme weather disrupted power in Montgomery County, Maryland, civic leaders sought to strengthen their community's resilience while striving for bolder sustainability goals.

Solutions

AlphaStruxure's Energy as a Service model integrated with EcoStruxure Microgrid solutions helped Montgomery County become a leader in fleet electrification — all with zero capital outlay and no risk.

Results

- Utilizes a 6.5 MW microgrid with battery energy storage, on-site solar, and more
- Advances the county's goal of reducing carbon emissions 80% by 2027, and 100% by 2035
- Ensures reliable transit for the county's 1.1 million residents

Precedent for partnership

In a competitive bidding process, the county found that AlphaStruxure's simplified Energy as a Service (EaaS) model, combined with connected, interoperable Schneider Electric solutions, would be the most promising path to realizing its vision for a cleaner, more resilient transit system. But this wasn't the first time Montgomery County sought Schneider's energy and sustainability expertise.

In 2014, Montgomery County issued a call for proposals seeking solutions that could embed sustainability and resiliency into its energy infrastructure. After a rigorous selection process, in 2017 the county chose Schneider Electric's proposal: Schneider and Duke Energy Renewables would partner to install two advanced microgrids, modernize electrical infrastructure, and operate and maintain the microgrids for the life of the contract — all with no CapEx.

With Schneider solutions in use in county buildings and microgrids online, Montgomery County was already an archetype for civic sustainability. Electrifying its transit system and investing further in microgrids, battery energy storage, and renewables helps solidify the county's leadership in this space.

6.5 MW

microgrid with battery backup

AlphaStruxure simplifies sustainability

This fleet of the future is made possible with the combined might of AlphaStruxure EaaS and EcoStruxure software.

A joint venture between Schneider Electric and Carlyle, AlphaStruxure finances, designs, builds, owns, operates, and maintains tailored energy infrastructure, including microgrids. AlphaStruxure owns the equipment throughout the lifecycle, making it responsible for long-term outcomes regarding resilience, reliability, greenhouse gas reduction, and cost stability. This Energy as a Service model allows more organizations and businesses to make meaningful progress toward decarbonization without having to worry about operation, maintenance, or even CapEx. "AlphaStruxure has been a great partner for Energy as a Service. It combines the expertise in the energy industry with Schneider Electric and brings in the private-sector capital with Carlyle," Brown says.

With the financial strength and 24/7 operations and maintenance support of this joint solution, Montgomery County is a vanguard of smart, sustainable, and resilient infrastructure. Brown elaborates, "AlphaStruxure as an Energy as a Service provider brought together three critical things for us: it delivered the expertise to design and meet our project goals, it alleviated our budget concerns by bringing

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— Chris Brown, Chief of the Office of Energy and Sustainability, Montgomery County, Maryland

Montgomery County's Brookville Smart Energy Bus Depot at a glance:

- 160,000 tons of CO_2 avoided over the life of the project
- 6.5 MW microgrid with three 633 kW generators
- 1.6 MW solar PV array
- 3 MW battery energy storage system
- Charging for 70 electric buses
- 4.14 MW of charging capacity
- Eighteen 180 kW 3-dispenser chargers
- Two 450 kW pantograph rapid chargers

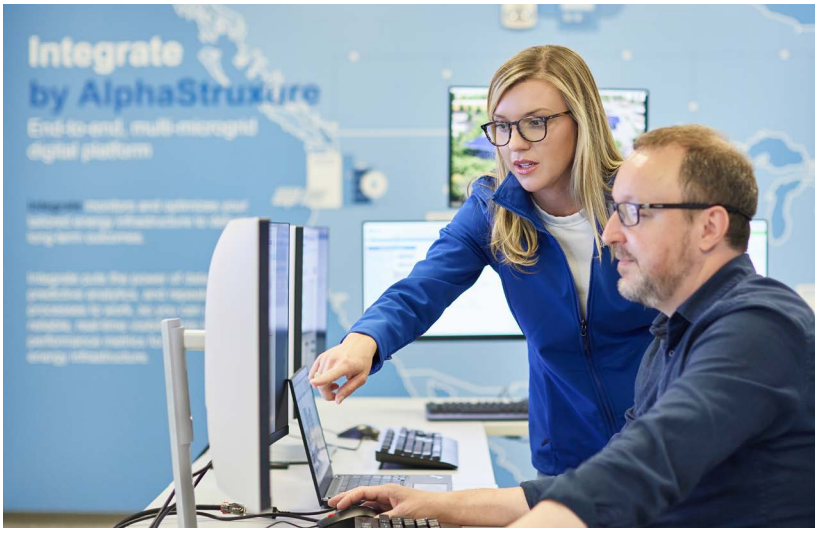
in private-sector capital, and it de-risked our county operations by putting the long-term operations in the hands of the right people."

The "right people" that Brown refers to are located at Alphastruxure's Network Operations Center in Massachusetts. There, operators work to ensure that the Brookville Depot maintains secure and efficient operations 24/7 through AlphaStruxure's Integrate digital platform. Integrate monitors, operates, and optimizes the depot's tailored energy infrastructure so that the microgrid meets Montgomery County's sustainability and resilience goals.

Less carbon, more resilience with EcoStruxure

The county's investment in clean infrastructure presents an understanding of a world in which extreme weather is only increasing. Decentralized energy solutions like microgrids, on-site renewables, and battery energy storage help keep operations running. Solutions like EcoStruxure Microgrid Advisor and Power Monitoring Expert power this data-driven sustainability.

For the microgrid itself, a third-party charge management system integrates seamlessly into operations, helping Brown and his team optimize electric bus charging while improving reliability through EcoStruxure-connected products and software.



These solutions enable dynamic control of the microgrid by forecasting and optimizing how and when to consume, produce, and store energy, for peace of mind no matter the weather. Continuity of service is a key point to Brown: "When we design and operate our facilities, we think about climate change on two fronts. There are emission reduction strategies, but there's also climate adaptation. We know that storms will come with increased frequency — we will lose power — and we know that that's something we need to incorporate in our planning."

AlphaStruxure's EaaS financing model allows for an aspect of reliability that's often

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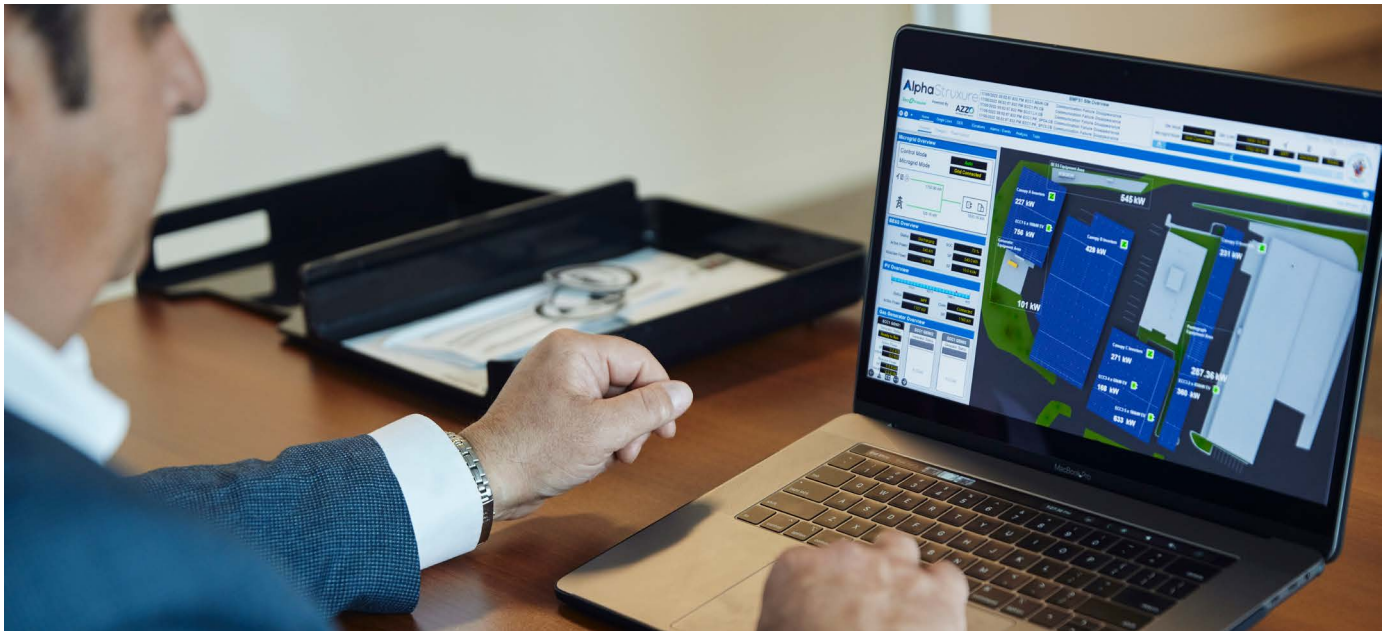
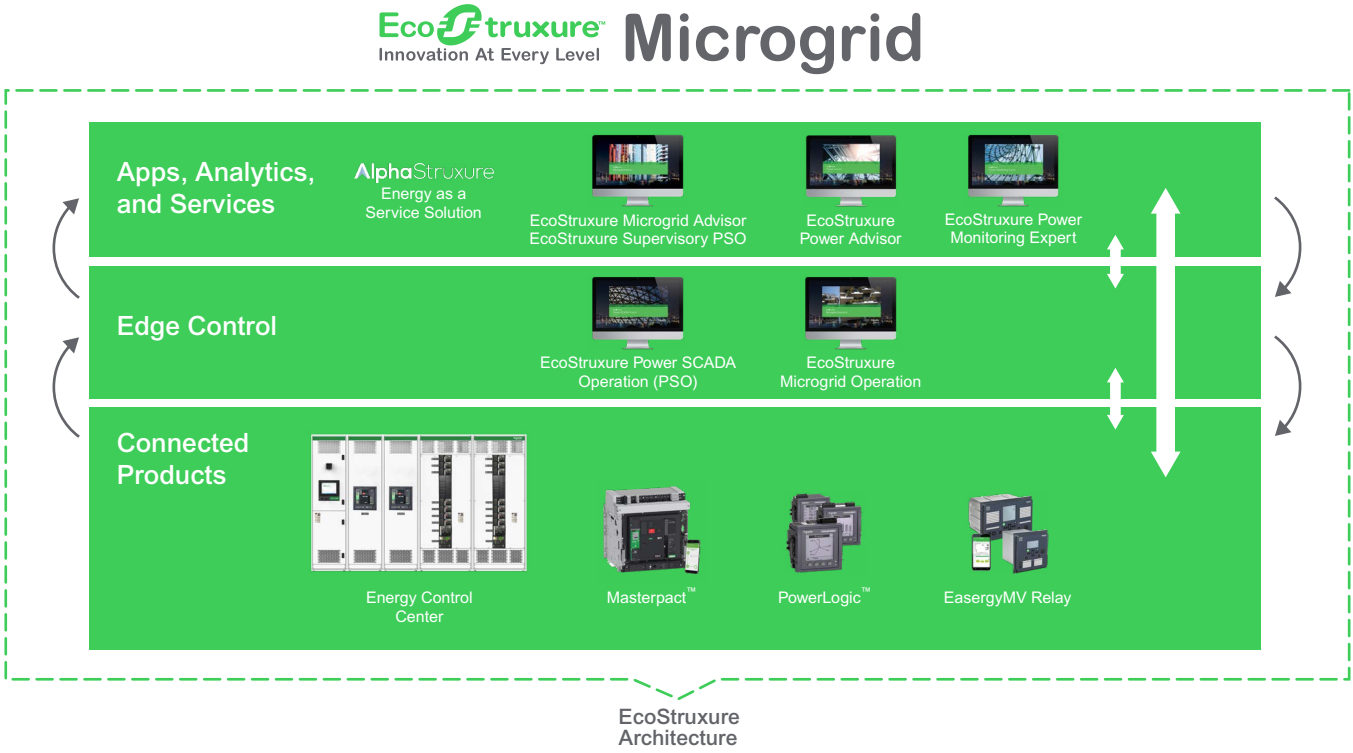


overlooked: cost predictability. “In addition to the resilience that comes from having a system that can operate independent from the utility grid, we also expect to see long-term predictability of energy costs. It’s another form of resilience and stability in that we won’t be surprised by current events, such as geopolitics, that affect energy prices.” Of all the benefits this latest collaboration between Schneider and Montgomery County has delivered, perhaps none is as important to Brown as peace of mind for a sustainable future. Reflecting on the journey so far, Brown says, “We have an ability to use the Energy as a Service model to accelerate the deployment of technology we need to achieve our climate goals. And we can do that at a pace and scale that we might not otherwise achieve if not for AlphaStruxure.”

160,000

tons of CO_2 projected to be avoided by 70 electric buses over the 25-year project



EcoStruxure™
Innovation At Every Level

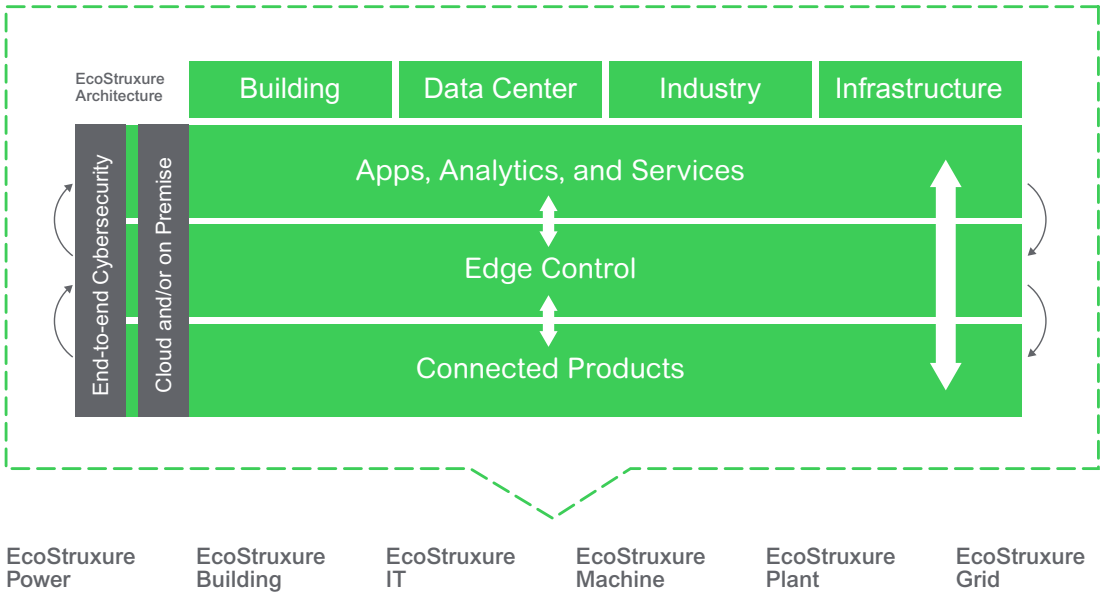
IoT-enabled solutions that drive operational and energy efficiency

EcoStruxure is Schneider Electric's open, interoperable, IoT-enabled system architecture and platform.

EcoStruxure delivers enhanced value around safety, reliability, efficiency, sustainability, and connectivity for our customers.

EcoStruxure leverages advancements in IoT, mobility, sensing, cloud, analytics, and cybersecurity to deliver Innovation at Every Level including Connected Products, Edge Control, and Apps, Analytics, and Services. EcoStruxure has been deployed in 480,000+ sites, with the support of 20,000+ system integrators and developers, connecting over 1.6 million assets under management through 40+ digital services.

One EcoStruxure architecture, serving four end markets with six domains of expertise



Connected Products

The Internet of Things starts with the best things. Our IoT-enabled best-in-class connected products include breakers, drives, UPSs, relays, sensors, and more. Devices with embedded intelligence drive better decision making throughout operations.

Edge Control

Mission-critical scenarios can be unpredictable, so control of devices at the edge of the IoT network is a must. This essential capability provides real-time solutions that enable local control at the edge, protecting safety and uptime.

Apps, Analytics, and Services

Interoperability is imperative to supporting the diverse hardware and systems in building, data center, industry, and grid environments. EcoStruxure enables a breadth of agnostic Applications, Analytics, and Services for seamless enterprise integration.

Find out more about EcoStruxure.

se.com/ecostruxure

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AlphaStruxure

Microgrid Solutions

Energy Control Center

Energy as a Service

Software and Services

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